Baker, M. A. and C. H. Gibson, "Sampling Turbulence in the Stratified Ocean: Statistical Consequences of Strong Intermittency," J. of Phys. Oceanogr., 17: 10 (1987), 1817-1837 (22 pages). Mark Baker's thesis results. All available ocean microstructure data for ε and χ are examined, and are shown to be well represented by extremely intermittent lognormal probability distributions, with intermittency factors $\sigma^2_{\ln\varepsilon}$ and $\sigma^2_{\ln\chi}$ in the range 3-7. The consequences of neglecting effects of extreme intermittency on estimates of average values are examined [underestimates are quite likely-the mean to mode ratio for a lognormal is $\exp(3\sigma^2/2)$]. Confidence intervals for maximum likelihood estimators of mean values assuming lognormality are derived, and it is shown that the numbers of independent samples of ε and χ required by the σ^2 data to achieve 10% accuracy in estimates of mean values are in the range 100 to 10,000.